UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,773	02/27/2002	William Arthur Welsh	67,008-041/S-5453	5465

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ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*16 August 2006*</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *6-19* is/are allowed.

6)☒ Claim(s) *1-5 and 20-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    - Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated

by Bazarjani et al (US 6,005,506).

With respect to claim 1, Bazarjani discloses a method for controlling a physical

variable at a frequency of interest (f.sub.d) including the steps of:

a) sampling the physical variable at a sample frequency less than twice the

frequency of interest (col.5 ln.27-30, col.8 ln.54-59);

b) calculating at least one control command based upon the sampling of the

physical variable (fig.4 #2270); and

c) generating a force for controlling the physical variable based upon the control

command (col.8 ln.1-3).

With respect to claim 2, Bazarjani discloses the method of claim 1, further

including the steps of: band pass filtering the physical variable prior to said step a) (fig.2

#2218).

With respect to claim 3, it is inherently known in the art that in order to process a

specific frequency, a band pass filter extracts a frequency range around the desired

frequency with a lower and upper bound. These bounds can be generally given by (2n-

1)*f.sub.s/2 and by (2n+1)*f.sub.s/2, where n is an integer chosen so that the frequency

of interest is within the upper and lower bounds. Bazarjani discloses the sampling of

the IF signal at $(2n-1)*f_s/4$ (col.8 ln.43-46), after being down-converted from the

frequency of interest by mixer (fig.2 #2220) and local oscillator (fig.2 #2222)(col.6 ln.27-

29). These new sampling bounds are a direct result of the frequency down-conversion.

With respect to claim 4, Bazarjani discloses the method of claim 1 wherein said

physical variable includes information within a bandwidth including said frequency of

interest and wherein said sampling rate is at least twice the bandwidth of this

information (col.9 ln.20-27).

With respect to claim 5, Bazarjani discloses the method of claim 1 further

including the step of generating the at least one control command at a rate less than

twice the frequency of interest (col.7 ln.56-67, col.8 ln.1-9). It is inherent that the

decimated samples input to controller (fig.4 #2270) influence the control command, at a

rate less that twice the frequency of interest.

With respect to claim 20, Bazarjani discloses the method of claim 1, wherein the

physical variable is sound or vibration (col.4 ln.9-11). Bazarjani discloses a receiver

(fig.2 #2200) that receives signal through antenna (fig.2 #2212). It is implied that the

received signals may contain audio information, hence making the physical variable a

sound.

With respect to claim 21, Bazarjani discloses the method of claim 20, wherein the

force is a sound or vibration. It is implied that if the received signal contains audio

information that the controller (fig.4 #2270) would generate a sound related force to compensate for detected errors (col.8 ln.1-3).

Allowable Subject Matter

Claims 6-19 are allowed.

Response to Arguments

Applicant's arguments filed August 16, 2006 have been fully considered but they are not persuasive.

With respect to Applicant's arguments on page 8 regarding claim 1, it is stated that Bazarjani does not disclose the step of "generating a force for controlling the physical variable based upon the control command". The Examiner recognizes the electrical signal received by the antenna (fig.1 #2112) as the physical variable acted upon by a force. The baseband processor (fig.4 #2270) is disclosed as performing additional signal processing, such as error detection/correction and decompression. It is implied that the processor uses electrical signals for the completion of this additional processing, wherein electrical signals exert an electric field or E-field that exerts a force on charged objects, hence the processor generates a force for controlling the physical variable.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

MacMartin et al (US 7,003,380 B2) discloses a system for computationally efficient adaptation of active control of sound or vibration.

Millott et al (US 6,856,920 B2)(US 6,772,074 B2) discloses adaptation performance improvements for active control of sound or vibration.

Jolly et al (US 5,845,236) discloses a hybrid active-passive noise and vibration control system for aircraft.

Shoureshi (US 5,629,986) discloses a method and apparatus for intelligent active semi-active vibration control.

Southward et al (US 5,627,896) discloses active control of noise and vibration.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason R. Kurr whose telephone number is (571) 272-0552. The examiner can normally be reached on M-F 10:00am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 273-8300. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

JK

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